Fall 2009

Nebraska Blueprint- Fall 2009

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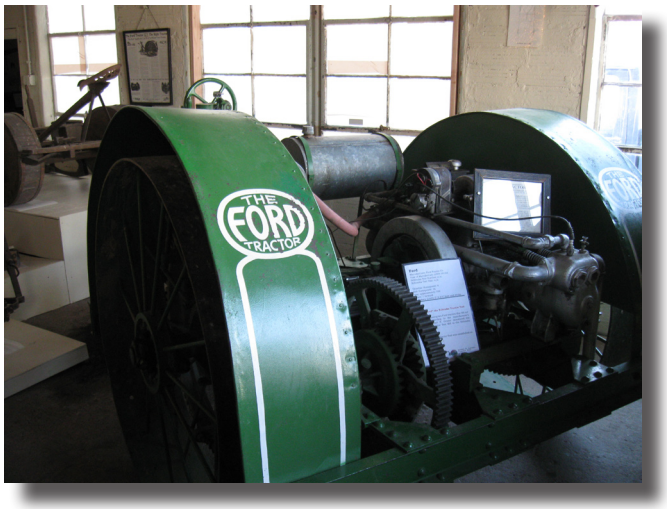
FEATURES



FROM THE EDITOR

Dear Readers:

Welcome to the Fall/Winter 2009 issue of the Nebraska Blueprint. In this issue we celebrate the 100th anniversary of the College of Engineering becoming its own separate college. 2009 seems to be one of those years best defined in terms of numbers. For example, this year saw the 300th consecutive sellout at Memorial Stadium. The College of Engineering celebrates its 100th anniversary. The Institute of Electrical and Electronics Engineers (IEEE) is celebrating its 125th anniversary.

Engineering classes have been offered at the university since 1877, when civil engineering classes began. The various engineering branches were merged together with agriculture, biology, math, chemistry, physics and other sciences in the "Industrial College." In 1909, the Nebraska Legislature divided the Industrial College into the College of Engineering and the College of Agriculture. Nebraska Governor Dave Heineman proclaimed November 5, 2009, as UNL College of Engineering Day in honor of this milestone.

This is a fun issue, with lots of historical photographs to enjoy. For a general overview of important events in the college's history, see my timeline article. To learn more about the IEEE 125th celebration, read Michael McEniry's article.

Lindsay Smith makes some very intriguing comparisons between then (1909) and now (2009) in her article. Nate Benes had the pleasure of interviewing two of the college's longest-serving professors, and he brings us his report inside. The engineering block here at UNL has some surprising origins, which Joel Schulte brings us in his article.

Enjoy this issue, and just think how far engineering has come in the past 100 years.

Sincerely,

Brian D. Neilson
Editor-in-Chief

THEN AND NOW

BY LINDSAY GRIGGS

The UNL College of Engineering was established in 1909. The first class was 435 students – all men. Today the college has more than 3,000 students in a variety of majors and academic programs.

LEFT: E-week began in 1913 and featured a Ms. E-week.

RIGHT: E-week now features a Mr. Engineer.

PHOTO COURTESY: Engineering Communications

LEFT: Engineering student researchers back in the old days.

ABOVE: Current Civil Engineering students participate in a steel bridge competition.

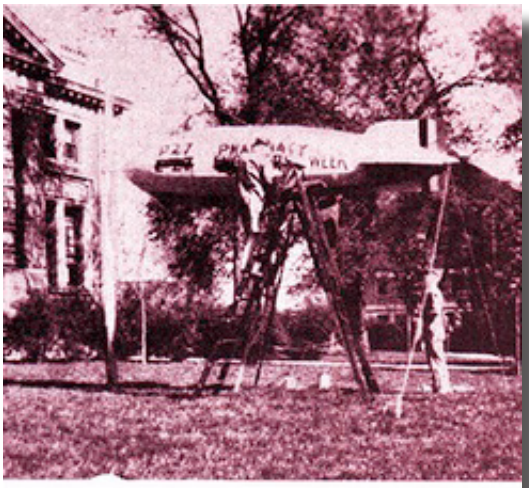
PHOTO COURTESY: Engineering Communications

THEN AND NOW, CONTINUED

LEFT: A picture of Dean Charles Richards in 1909.

RIGHT: The College of Engineering current dean, David Allen.

PHOTO COURTESY: University Libraries Archives and Special Collections, Engineering Communications



RESTORING THE LETTERING

ABOVE: Law students changed the lettering on the engineering dirigible display to read "Pharmacy Week."

PHOTO COURTESY: Engineering Communications

ABOVE: Members of the College of Engineering student body showcase the BIG RED flag at home football games.

PHOTO COURTESY: Engineering Communications

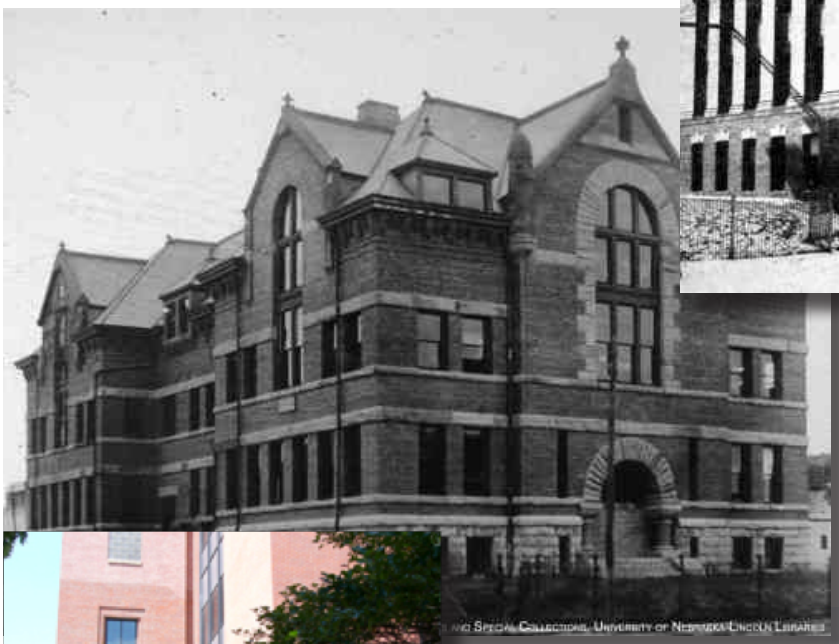
In 1909, the College of Engineering built Richards Hall as the new Mechanical Arts labs, and other classes were housed in the old Nebraska Hall and Stout Hall. Today the new Nebraska Hall, Scott Engineering Center, Othmer Hall, Avery Hall, and L.W. Chase Hall house the College of Engineering classrooms and labs on the Lincoln Campus. In Omaha, other engineering and computer programs are housed at The Peter Kiewit Institute.

THEN AND NOW, CONTINUED

RIGHT: Stout Hall was built in 1895.

BELOW: Old Nebraska Hall was built in 1887 and was demolished in 1961.

PHOTO COURTESY: University Libraries Archives and Special Collections



FAR LEFT: The current Nebraska Hall was bought by UNL in 1958.

BELOW: Othmer Hall was opened in 2002 and now houses the Dean's Office and Chemical and Biomolecular Engineering Department.

PHOTO COURTESY: Engineering Communications

LEFT: Richards Hall was formerly known as the Mechanical Arts Hall.

PHOTO COURTESY: University Libraries Archives and Special Collections

ENGINEERING BLOCK: A HISTORY OF HOME

BY JOEL SCHULTE

ABOVE: The Mechanical Engineering Laboratories, now known as Richards Hall.
PHOTO COURTESY: Engineering Communications

It's known as "the block." It can provide warmth to a cold winter pedestrian all the way from 16th and Vine streets to 17th and X. Inside, giant sections of bridges are tested while a football field away a tired student takes a quiet nap. Every day, hundreds of students, faculty and staff weave through the seemingly endless hallways of Scott Engineering Center, the multiple landings of Nebraska Hall, and the computer lab nooks beneath the Link. The engineering block on city campus spells home for its long-time inhabitants, confusion for freshmen, and a mystery for anyone else. But for anyone who hasn't been around for long, the rich history of how this bustling center of activity came to be might be taken for granted.

Starting in the 1880s, the University of Nebraska had what was called the Industrial College. It was originally headquartered in a building named Nebraska Hall – but not the same Nebraska Hall we know today. Located approximately where Hamilton Hall now stands, it also served as a history museum and office complex. In 1909, the Industrial College officially split into the College of Agriculture and the College of Engineering. As the engineering program expanded, various buildings throughout campus would join in on engineering studies. Among them were Mechanical Arts Hall (Stout Hall), Richards Hall, Avery Hall and Ferguson Hall. In a role reversal, industry - usually a beneficiary of engineering studies - would play benefactor for the COE.

In 1932, a warehouse was built at about 17th and W Streets.

A fledgling construction company, NebCo, called it the Union Terminal Warehouse. Along with the beginnings of NebCo–today a thriving concrete and construction group–notable projects and famous figures found temporary hosting in the warehouse. With the onset of the depression, federal work and art programs were housed here, with aspiring artists and authors such as Mari Sandoz putting pen to paper. Little did she know her namesake building would house hundreds of university students across the street.

Then watches took the spotlight. Founded in Chicago in 1864, Elgin Watch Company became an enormous and respected name in the watch industry, building numerous manufacturing facilities throughout the Midwest. One lucky spot was the Union Terminal Warehouse – and it was purchased in 1945. For the next 13 years, the Elgin Watch Company hosted more than 300 jobs and aided in Lincoln's development along its north side.

It was not an exceptional story in terms of the post World War II industrial boom. However, the economy leveled off in the late 1950s, while enrollment at the University of Nebraska steadily increased. In 1958, the watch factory closed and the university purchased the building. It quickly became an all-purpose facility for university functions, such as printing, communications, and the Nebraska Natural History museum.

As more and more programs and university departments opened, it was high time for the engineering college to find its own collaborated space on city campus. In 1972, the Walter Scott Engineering Center was built as dedicated engineering research and classroom space.

This building was a huge turning point for the program. Walter Scott's space opened the door for the eventual mass migration of the engineering departments away from their previous locations. Civil Engineering and Engineering Mechanics later moved to Nebraska Hall, and "the Link" was constructed between the two buildings, which itself provided Electrical and Mechanical Engineering home offices. Finally in 2003, Donald F. Othmer Hall was completed, which now provides a home to the Chemical Engineering department, a general office and lobby area and home of the dean's office. It has been steady consolidation of the college to what is seen today.

ABOVE: The outside of Scott Engineering Center.
PHOTO COURTESY: Engineering Communications

We want to thank Dr. Morris Schneider of the Industrial and Management Systems Engineering Department and Dr. Dennis Schulte of Biological Systems Engineering for their help and insight into the history of the engineering block.

COLLEGE OF ENGINEERING TIMELINE

BY BRIAN NEILSON

1869: The University of Nebraska was chartered. It included a College of Practical Science, Civil Engineering and Mechanics, and College of Agriculture -- which soon merged into the Industrial College.

1877: Civil engineering courses — created by Lt. Edgar S. Dudley, the first Commandant of Cadets at the university — were offered in Lincoln. Its first equipment included one transit; one 2,000 pound cement tester; and some common surveying instruments.

1891: Electrical engineering courses were first offered.

1898: Mechanical engineering courses were first offered.

1902: The Blueprint magazine was created, continuing to this day with this current issue.

1904: Sigma Tau was founded in 1904 at the University of Nebraska as an engineering honor society. It grew to 34 collegiate chapters by 1974. The Sigma Tau pyramid can be seen today in front of Othmer Hall.

1909: University of Nebraska's College of Engineering was established by the legislature's House Roll No. 76 (Kotouc bill). With that came a $115,000 mechanical engineering laboratory. Dean C.R. Richards was adamant that a new facility be designed to serve the specialized technical needs of an engineering college. Prior to completion of the Mechanical Engineering Laboratories, most engineering classes were theoretical by necessity, since the university's facilities did not provide the space, or specialization, for practical, hands-on training. Woodworking and machine shops, a foundry, and laboratories for heat, steam, gas, forging, drafting, and hydraulics, as well as the usual lecture rooms and offices, were incorporated into Richards' design. (NOTE: the ME Labs building now houses art gallery space for UNL's Department of Art.) All 435 students were men.

1910: The Agricultural Engineering department was added.

1913: E-Week officially began. The Daily Nebraskan referred to engineers as "shop men ... calloused, grimy-handed, north side tenement dwellers." They retaliated by stealing the press and producing their own DN edition, expounding the splendors of E-Week.

1920: Nebraska established a Tractor Test Law. More than 1,750 tractors (ranging in horsepower from 1.5 to over 400) have been tested at the Nebraska Tractor Test Laboratory. This East Campus facility remains the world standard for tractor performance testing and is part of the Department of Agricultural Engineering.

1940: Tuition at the university was $2.50 per credit hour.

1947: The college was renamed the College of Engineering and Architecture, and remained until 1972 when it was changed to the College of Engineering and Technology. The College of Architecture became its own college at that time.

1950: Electrical Engineering moved into the newly built Ferguson Hall, consolidating classes from several buildings.

1958: The Chemical Engineering department was added in a wing of Avery Hall. Also, Nebraska Hall was purchased from the Elgin Watch Factory, adding 440,000 square feet. It was not until early 1971 that the engineering college moved into the west half of the building.

1969: Attracting an attendance of approximately 10,000 guests, E-Week was listed as the second largest public spectator event on campus.

1970: Nebraska's engineering program ranked third in the U.S. in number of job offers for engineering graduates.

1972: The Nebraska Engineering Center (NEC) was dedicated and housed laboratories, research centers, and the engineering shop. Today its name is Scott Engineering Center. Also, the college's name changed to the College of Engineering and Technology. It included engineering technology programs in Omaha, administered by the college in Lincoln.

1974: Sigma Tau merged with Tau Beta Pi to form one strong honor society that would serve the engineering profession.

1984: The Link was added to join NEC and Nebraska Hall. NEC was renamed Walter Scott Engineering Center in honor of Walter Scott, Sr., a 1923 civil engineering graduate and a leader with Kiewit. Also, the 1985 Blueprint reported that "engineering students ranked third from the top in national testing in 1984."

1999: State-of-the-art facilities with The Peter Kiewit Institute for Information Science, Technology and Engineering opened in Omaha. PKI includes the UNL College of Engineering (including The Charles Durham School of Architectural Engineering and Construction), and the University of Nebraska at Omaha College of Information Science and Technology. PKI maintains strong ties with local industry.

2002: Othmer Hall opened for classes. It was named for chemical engineering alumnus Donald Othmer.

2005: To reflect its changing educational mission, the college changed its name to the College of Engineering. Technology was removed from the name in accordance with a national movement to eliminate technology development programs in engineering curricula.

2007: The former Athletic Department building under South Stadium was remodeled and became the June and Paul Schorr III Center for Computer Science and Engineering, housing UNL's supercomputers.

2009: The College of Engineering celebrates its first 100 years.

Excerpts from the complete timeline found on posters throughout the engineering buildings and at http://engineering.unl.edu/100/

LONGTIME PROFESSORS LEAVE LASTING IMPACT

BY NATE BENES

ABOVE: Dr. Morris Schneider at work in his office in Nebraska Hall.
PHOTO: Brian Neilson

Throughout their time in the College of Engineering, professors are given the opportunity to influence hundreds of students as they pass through one class to the next, but some professors have been around a little longer than others. Among the more experienced professors are Dr. Morris Schneider (MECH/IMSE) and Dr. William Splinter (AGEN/BSEN). Between the two, they have amassed more than 100 years of tenure with the college.

Dr. Schneider came to UNL in 1946 to earn his bachelor's degree in Mechanical Engineering after serving as an Army combat engineer in WWII. He later joined the faculty in 1954 as an instructor for the introductory mechanical engineering course, taught in the Richards Hall auditorium, which was at that time home of the ME department. At that time every engineering student carried a slide rule, and every professor dressed formally for class.

E-Week was a major event that would attract as many as 10,000 visitors to campus, and there was an ongoing rivalry between the engineering students and the law students who studied in adjacent buildings.

For many years, industrial engineering and mechanical engineering students were required to take an introductory course in manufacturing that focused on basic metal and wood fabrication skills, and although Schneider taught many classes throughout the years, that was his favorite.

It was only fitting that when Industrial Engineering became its own department in 1970, Schneider was selected as chair, a position he held for 16 years. He then went on to serve as associate dean of the college. When he retired in 1993, he earned the coveted Doc Eliot award for going above and beyond the expectations of UNL and making a difference in the lives of students and alumni. He continues to serve today, teaching the Industrial Engineering senior design project (IMSE 450).

Schneider said the best part of teaching has been the alumni that stay in touch long after graduation.

ABOVE: Dr. William Splinter poses on a 1910 International Harvester at the Larsen Tractor Museum.
PHOTO: Brian Neilson

Dr. Splinter graduated from UNL in 1950 with an Agricultural Engineering bachelor's degree and returned to the university to teach in 1968.

The university of the 1950s was dramatically different from what it is now. Instead of its current policy of retention, it focused on weeding out as many students as possible, due to so many students returning from WWII and also because of limited facilities on campus.

Splinter later went on to head the Agricultural Engineering department. He was always passionate about the benefits to both the college and university of a strong research program, and after serving two years as interim dean of the college, he became assistant vice chancellor of research and eventually vice chancellor of research in 1988, a position he held for two years. After another term as interim dean of the college, he became director of the L.F. Larsen Tractor Test and Power Museum located on East Campus. He said the UNL of the present is now much more focused on research than it was in the 1950s and believes it is crucial to its success.

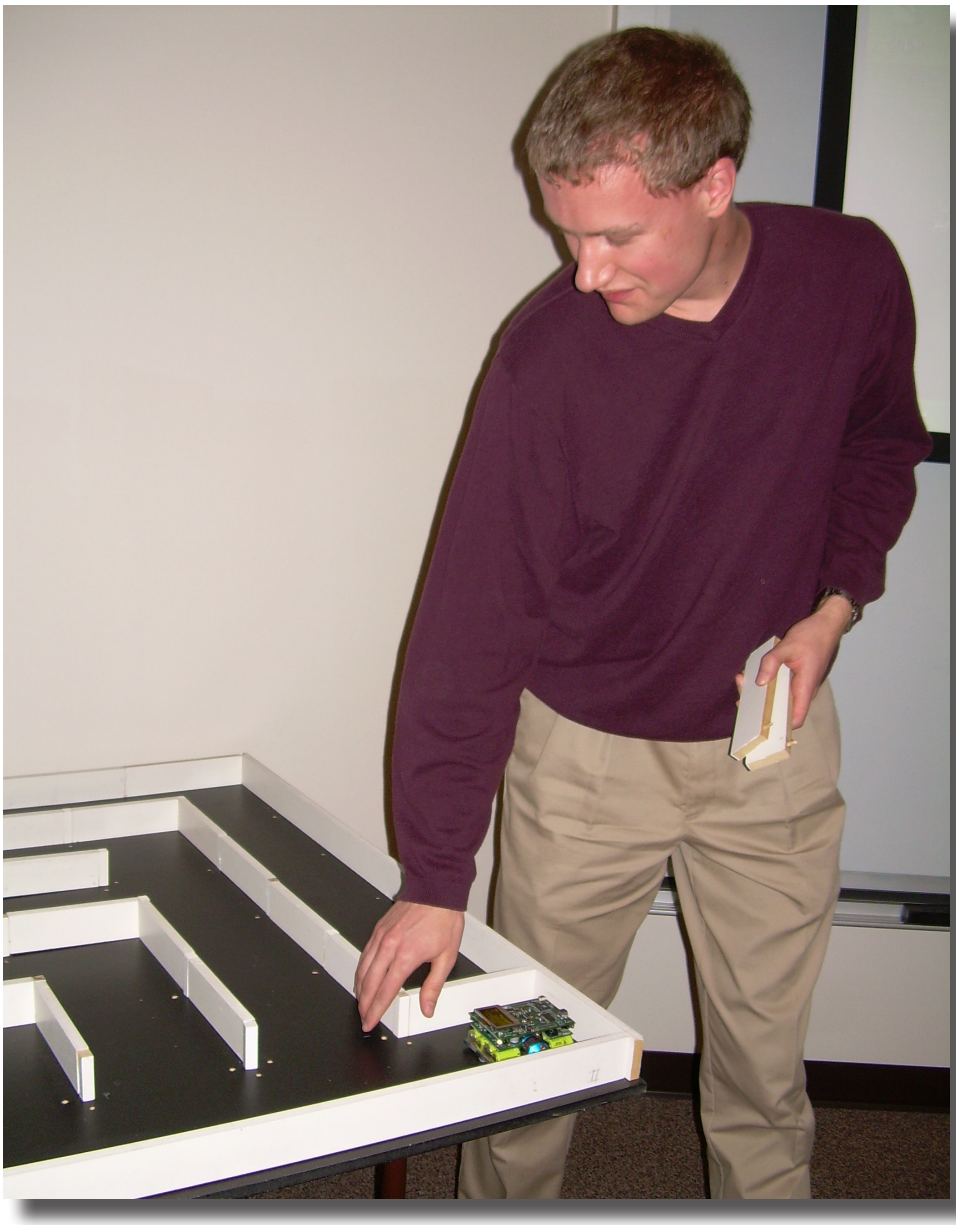
And how have the students changed? Splinter said they are much more prepared for college now. He noted the thing most crucial to his success as a student was being actively involved in campus activities. For him the activities that made a difference were involvement with Toastmasters, which teaches public speaking skills, and our very own Blueprint magazine.

And as far as changes in ag technology, he has gone from testing tractors with almost 40hp to a tractor he was expecting to test in 2009 rated at 585hp.

Splinter's current research interests involve the history and preservation of colonial and pioneer agricultural artifacts and the restoration and history of significant agricultural tractors and machines.

IEEE 125TH ANNIVERSARY CELEBRATION

BY MICHAEL McENIRY



ABOVE: Nathan Schemm, a graduate electrical engineering student, demonstrated his Micro Mouse competition entry.
PHOTO: Michael McEniry

This year (2009) marks the 100th anniversary of UNL's College of Engineering. For one group of engineers, however, 2009 is even more special. Members of UNL's chapter of the Institute of Electrical and Electronic Engineers (IEEE) are also celebrating the 125th anniversary of IEEE.

As part of IEEE's year-long celebration, the UNL chapter held two special events with guest speaker Jalyn Kelley, IEEE client services manager. The reception event in Scott Engineering Center gave students and IEEE members the opportunity to meet and converse with Kelley. The reception also included special displays and inventions designed by electrical engineering students.

Nathan Schemm, a graduate electrical engineering student, demonstrated his Micro Mouse competition entry. His small robotic "mouse" was tasked with navigating an intricate maze to find a finish point using infrared sensors. Also present was a display of historical electrical engineering text books, many over 100 years old. Included in the display was an original copy of the American Institute of Electrical Engineers first organizational rules book from 1894. The book display was furnished by Ginny Baldwin of the Engineering Library.

Following the reception, the celebration activities moved to Nebraska Hall, where Kelley presented and received questions on IEEE's Xplore, a digital library providing access to technical literature in electrical engineering, computer science and electronics. Kelley explained that Xplore has an extensive collection of IEEE documents, including letters and magazines dating back to 1893.

"UNL has contributed over 1,000 documents to Xplore," Kelley said. In addition to explaining the basics of Xplore, Kelley shared tips

and demonstrated useful tricks when using Xplore. These included using session history to create more complex searches, using the citation search for known items and finding pre-print articles that are forthcoming.

The Institute of Electrical and Electronic Engineers has not always been known as IEEE. According to their Web site, the organization traces its origins back to the spring of 1884 in New York City. There, a small group of individuals in the electrical profession gathered to form an organization to support others in their field, and they called this organization the American Institute of Electrical Engineers (AIEE). In October of the same year, the AIEE held its first technical meeting in Philadelphia. Early leaders and members of the organization included founding President Norvin Green, who came from telegraphy. Other members included Thomas Edison and Alexander Graham Bell. With the rapid spread of electricity through the country, AIEE became primarily focused on electric power and its ability to change people's lives. A secondary focus was placed on the wired communications of the telegraph and telephone.

The up-and-coming industry of wireless communication or radio lead to the formation of an organization for individuals in this field in 1912. The Institute of Radio Engineers (IRE) was modeled after AIEE but was devoted to radio and later increasingly to electronics. Both of these societies served to further individuals in their respective fields through publications, standards and conferences, and encouraged them to advance their industries by promoting innovation and excellence in emerging new products and services.

With the development of television, radar, transistors and computers, electricity was becoming more ingrained in everyday life. During these developments, the interests of both organizations began to increasingly overlap. As a result, the organizations agreed to merge and become one society. On Jan. 1, 1963, AIEE and IRE merged to form the Institute of Electrical and Electronics Engineers. At the time of its formation, IEEE had 150,000 members, with 140,000 of them from the U.S.

ABOVE: Jalyn Kelley presented IEEE's history in Scott Engineering Center.
PHOTO BY: Michael McEniry

UNL's chapter of IEEE traces its roots to 1898, when it was known as the Society of Electrical Engineers. This later became UNL's own AIEE society on April 10, 1908. UNL's chapter of AIEE was originally limited to junior and senior student membership.

Currently, there are approximately 120 student and faculty members in UNL's chapter of IEEE. There is also a Nebraska section that includes all UNL members, as well as all IEEE members from around the state. Nebraska is part of IEEE's Region 4, which covers the north-central portion of the United States. This region accounts for 6.8% of IEEE's worldwide membership. In addition, IEEE members can join any of 38 particular IEEE societies.